

Source Water Assessment Program (SWAP) Report For Blanchard Memorial School



Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

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December 13, 2001

Table 1: Public Water System (PWS) Information

| | |
|----------------------|---------------------------|
| <i>PWS NAME</i> | Blanchard Memorial School |
| <i>PWS Address</i> | 493 Massachusetts Avenue |
| <i>City/Town</i> | Boxboro |
| <i>PWS ID Number</i> | 2037010 |
| <i>Local Contact</i> | Chuck Stewart |
| <i>Phone Number</i> | (978) 335-2583 |

| <i>Well Name</i> | <i>Source ID#</i> | <i>Zone I (in feet)</i> | <i>IWPA (in feet)</i> | <i>Source Susceptibility</i> |
|------------------|-------------------|-----------------------------|---------------------------|----------------------------------|
| WELL #2 | 2037010-02G | 393 | 2400 | Moderate |

What is SWAP?

The Source Water Assessment Program (SWAP) established under the federal Safe Drinking Water Act requires every state to:

- ? inventory land uses within the recharge areas of all public water supply sources;
- ? assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? publicize the results to provide support for improved protection.

Maintaining Your Good Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

INTRODUCTION

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contaminant, including septic systems, road maintenance, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contaminant, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attached Map of the Protection Areas

1. DESCRIPTION OF THE WATER SYSTEM

Blanchard Memorial School obtain its water supply from a 380 foot deep bedrock well located in the back portion of a parcel of land adjacent to the school. The parcel of land the well is located on, belongs to the Town of Boxborough. The well has a Zone I of 393 feet and an Interim Wellhead Protection Area (IWPA) of 2400 feet. The IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA. Please refer to the attached map of the Zone I and IWPA. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA. The site lies near the center of the Nashoba zone,

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

a fault-bounded block of high-grade, steeply dipping metamorphic rocks. The rocks generally consist of Ordovician or proterozoic amphibolite and feldspathic gneiss assumed to be of volcanic origin. Surficial geology consists of drumlins and thin lacustrine deposits. An esker is present on the western portion of the parcel. The well serving the facility has no treatment at this time. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1. Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at http://www.epa.gov/enviro/html/sdwis/sdwis_query.html.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

2. DISCUSSION OF LAND USES IN THE PROTECTION AREAS

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination

Key issue include:

1. Inappropriate activities in Zone I;

The overall ranking of susceptibility to contamination for the wells is Moderate, based on the presence of all moderate threat land use or activity in the IWPA.

1. Zone I- Currently, the well does not meet DEP's restrictions for Zone I because it contains a Brook. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.

Table 2: Table of Activities within the Water Supply Protection Areas

| Facility Type | Potential Contaminant Sources | Zone I | IWPA | Threat | Comments |
|---------------|-------------------------------|--------|------|--------|----------|
| School | Stream | No | Yes | Low | |

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. PROTECTION RECOMMENDATIONS

Blanchard Memorial School should review and adopt the following recommendations at the School:

Zone I:

- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.

Training and Education:

- ✓ Train staff on proper hazardous material disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, food preparation staff, and those teachers involved in hazardous materials use areas such as the art room, science labs, and shop rooms.
- ✓ Post drinking water protection area signs at key visibility locations.
- ✓ Incorporate groundwater education into school curriculum.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at www.state.ma.us/dep/brp/dws/dwspubs.html.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on school property.

- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices, inspection, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials.

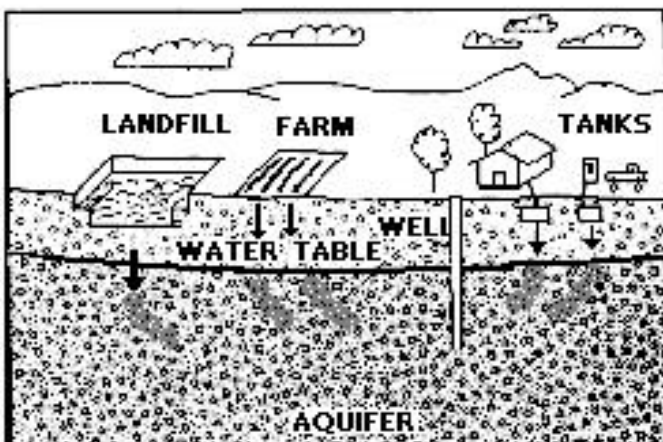


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact Josephine Yemoh-Ndi in DEP's Worcester Office at (508) 792-7650 x 4030 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on DEP's web site at:
www.state.ma.us/dep/brp/dws.

Copies of this assessment have been provided to the water department, town boards, the town library and the local media.

Planning:

- ✓ These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures
- ✓ Work with local officials in Boxboro to include the school IWPA in Aquifer Protection District Bylaws and other regulations and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.

Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing.

ADDITIONAL DOCUMENTS AVAILABLE:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

4. ATTACHMENTS

- Recommended Source Protection Measures Factsheet
- Map of the Public Water Supply (PWS) Protection Area.